

Servo High Temperature Vacuum Laminating Machine

User Manual (10inch display)



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Start process steps

(Remember: If it is the first time to run or the product height is different, you must first press the position detection button on the parameter setting page and click Set Parameters before you can start the machine)

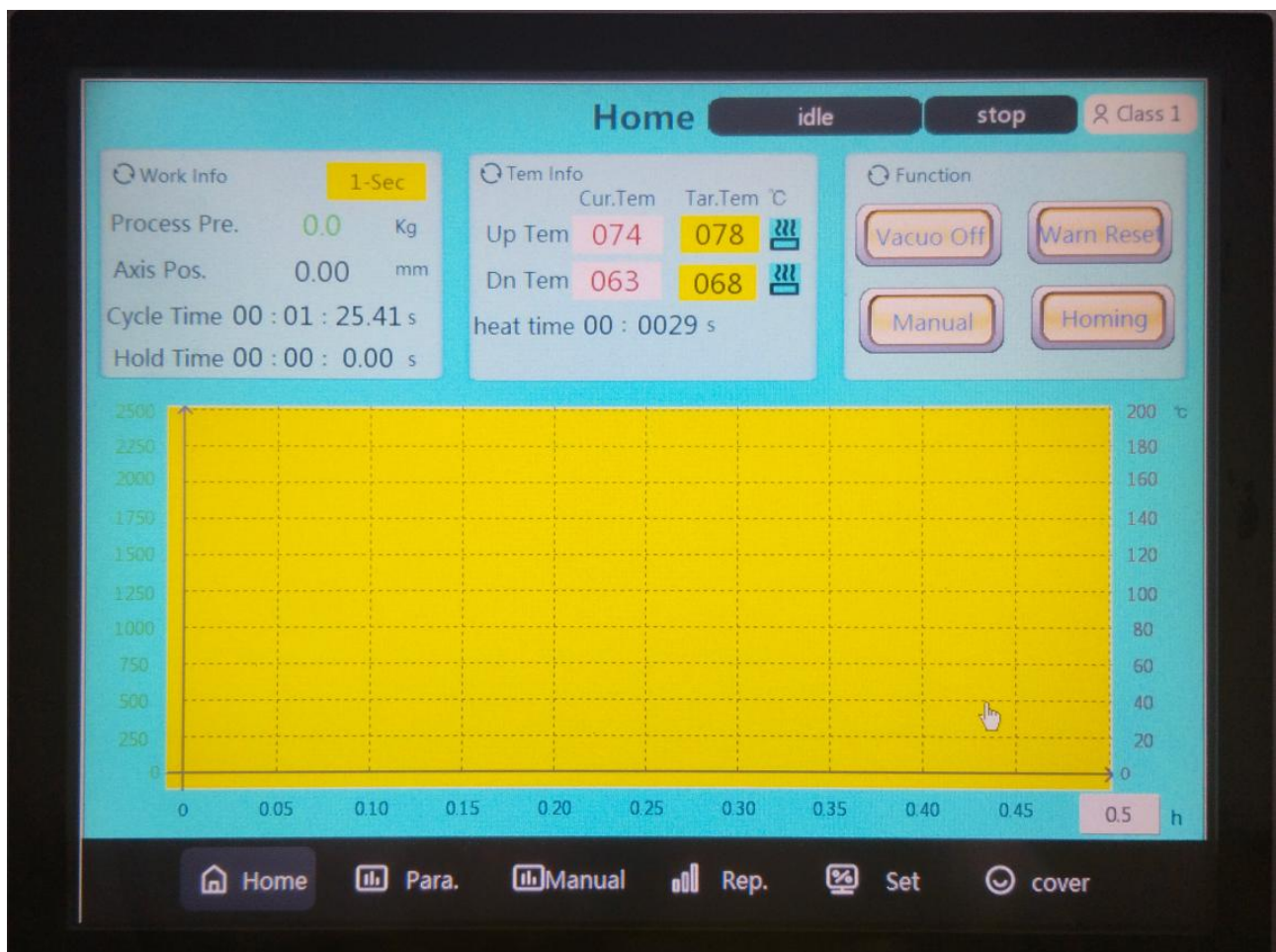
1. Turn on the machine power switch.
2. Press "Reset" to zero.
3. Select the recipe and hot pressing parameters.
4. Switch from manual to automatic.
5. Place the product on the platform.
6. Press the start button to start the process.

User Interface

1 Homepage

Page Description

The homepage is used to quickly monitor various work data.

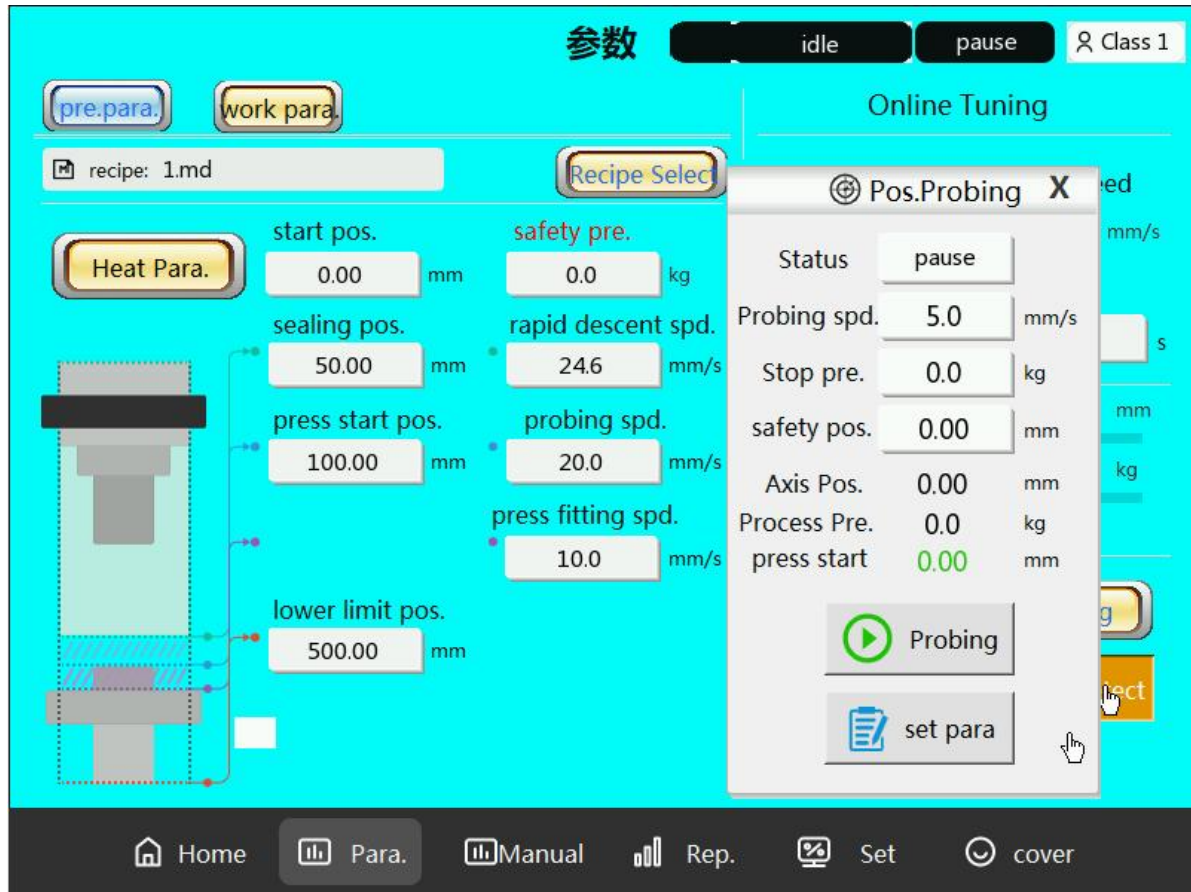


Page Details

- Top Status Bar
Displays warnings, prompts, and current user permissions.
- Pressure information
Current Pressure: Displays the current pressure in real time.
Z-Axis Position: Displays the current Z-axis position of the press.
Cycle Time: Displays the time required to complete one press.
Dwell Time: Displays the dwell time required after press fitting, which can be adjusted on the parameter page.
 Pressure units: KG
- Functional Areas
Vacuum Switch: Manually turns the vacuum on and off during operation.
Manual/Auto: Switches between manual and automatic modes.
Alarm Reset: When an alarm is generated, press the button to clear it.
Zero Reset: Press the button to return the press axis to zero.
- Temperature Information
Upper Die Temperature: Displays the upper die target and current temperatures.
Lower Die Temperature: Displays the lower die target and current temperatures.
Heating Time: Displays the heating timer.
Graph: Red represents the temperature curve, green represents the pressure curve.
- Bottom Menu Bar
Home: Click the button to access the home page.
Parameters: Click the button to access the press parameters, quality parameters, and recipe selection pages.
Reports: Click the button to access the production reports and pressure curve pages.
Equipment: Click the button to access device information pages, such as system parameters, software version, system upgrade, installment encryption, installment decryption, alarm logs, input and output, etc.
After-Sales: Click the button to access the device manufacturer information page. You can obtain after-sales telephone number, manufacturer address and other information.

The first step is to detect the position to avoid damaging the pressure sensor (for the first run or when the product height is different, be sure to press the position detection button on the parameter setting page and save the parameter settings before starting the machine)

- Location detection



Position Detection

Detection Speed: The speed used for position detection (default).

Start Pressure: The pressure at the end of product detection (depending on the actual pressure).

Safety Height: After detection is complete, the press-fitting starting position is calculated by subtracting the safety height from the actual detection position.

Current Position, Current Pressure, and Starting Position are displayed in real time.

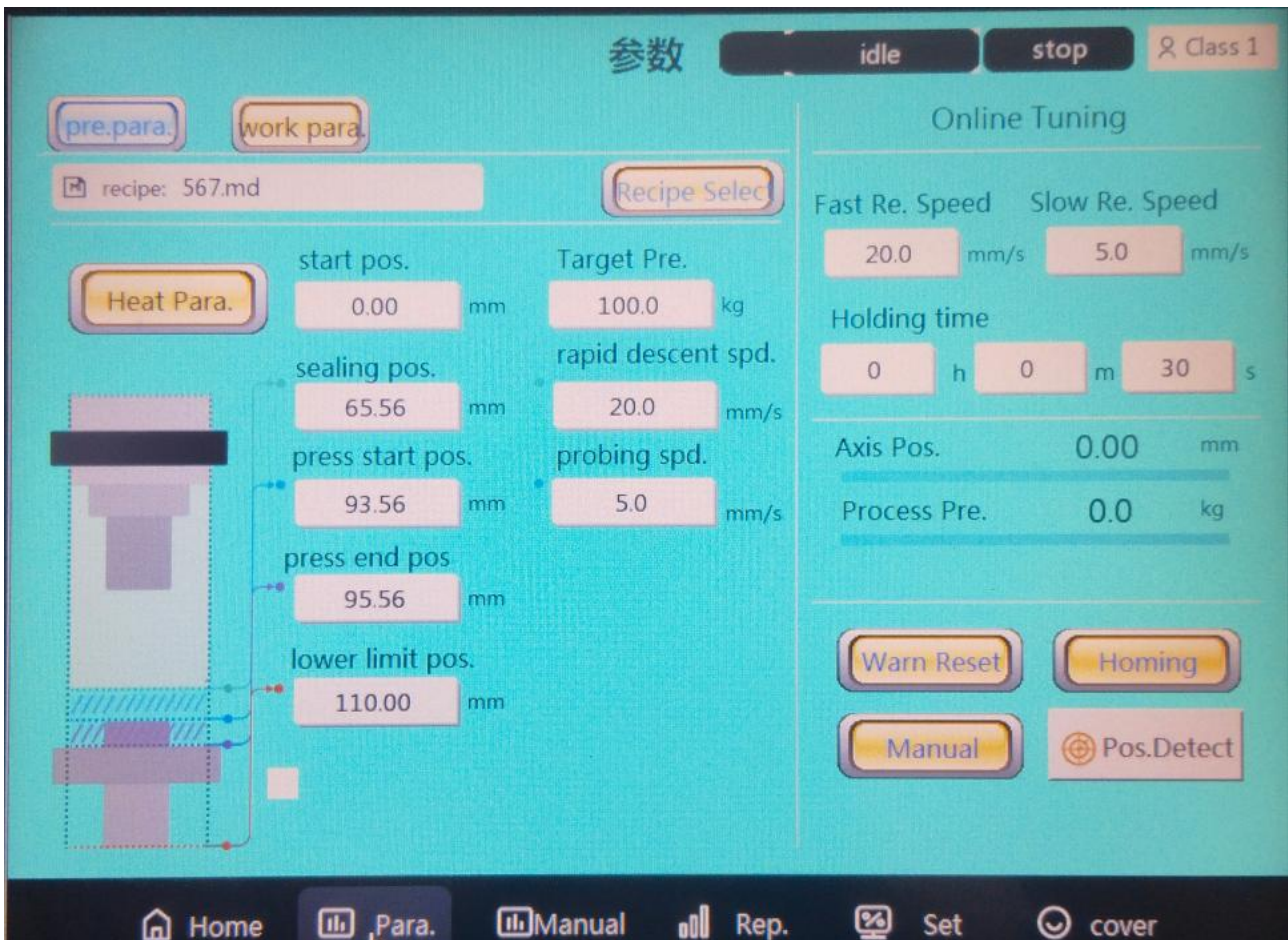
Start Detection: After setting the above parameters, click Start Detection to complete the process automatically.

Detection Completed: After detection is complete, click Set Parameters and close the Position Detection window.

2 Parameter page (To modify parameters, you need to log in with technician privileges, password 11111111)

Page Introduction

The parameter page is used to set the process parameters during press fitting, such as press fitting speed, press fitting position, target pressure, etc.



Page Details

- Pressing Parameters**
 Current Recipe: Displays the name of the currently active recipe.
 Recipe Selection: Click the button to enter the recipe selection page.
 Sealing Position: The press-fitting axis can quickly move to the sealing position, pressing the frame against the sealing ring on the platform.
- Fast Descent Speed:** The speed at which the press-fitting axis moves from the zero position to the "sealing position."
Press-Fixing Starting Position: It is recommended to set the press-fitting starting position 5mm

from the workpiece surface. If the press-fitting starting position is unknown, it can be manually lowered or determined using "Position Detection."

- **Descent Limit:** The lowering limit of the press-fitting axis. Please set this value based on the actual stroke of the press-fitting mechanism.

Target Pressure: Set the maximum pressure allowed during press-fitting (in kg).

Rising Speed: Set the speed at which the press-fitting axis returns to the zero position at the end of press-fitting.

Slow Rise Speed: The speed at which the press-fitting axis moves away from the product after press-fitting is completed.

Dwell Time: Set the dwell time during press-fitting.

Alarm Reset: Click this button to reset the current alarm.

Machine Zero Reset: Click this button to return the press-fitting axis to zero.

Z-Axis Position: Displays the current position of the press-fitting axis.

Current Pressure: Displays the current pressure value.

Manual: Click this button to switch between "Manual" and "Automatic" modes.

Detect Start Position: In Manual mode, click this button to begin moving the press-fitting axis at the "Fast Down Speed" to the "Detection Position," then downward at the "Start Detection Speed." During this movement, if the current pressure exceeds 0 kg, the press-fitting axis position is recorded and the axis returns to zero. This function is primarily used to detect the position of the workpiece surface, providing a reference for setting the "Press Start Position."

Start Position: Displays the position where the upper die of the press-fitting axis contacts the workpiece surface.

Heat pressing parameter settings

主页
idle
pause
Class 1

UP Tem 000000 °C

DOWN Tem 000000 °C

Process Pre. 0.0 Kg

Axis Pos. 0.00 mm

No.	UP Tem	Dn Tem	heat time m:s		pos(mm)	hold time H:M:S			vacuum statue
1	0	0		0	0.00	0	0	0	OFF ▼
2	0	6	0	0	115.00	0	0	0	OFF ▼
3		0		1	0.00	0	0	0	OFF ▼
4	0	0	0	0	0.00	0	0	0	OFF ▼

PRE_PRESS_VACUUM ON ▼

Program Segment 1 ▼

Press Fitting Mode pos. mode ▼

< Back

Upper Die Temperature: Current upper die temperature

Lower Die Temperature: Current lower die temperature

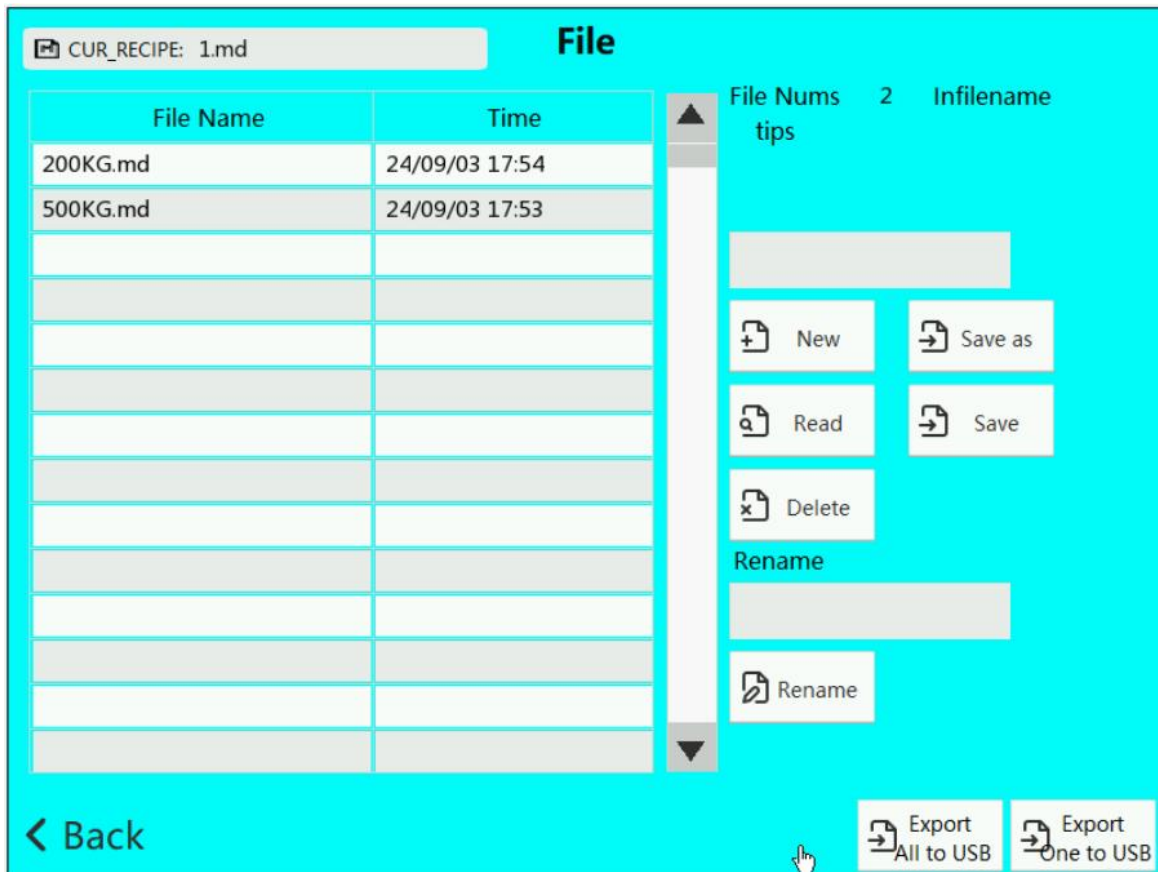
Current Pressure: Displays current pressure data

Programs can be run in up to four segments (you can select segments to freely set them).

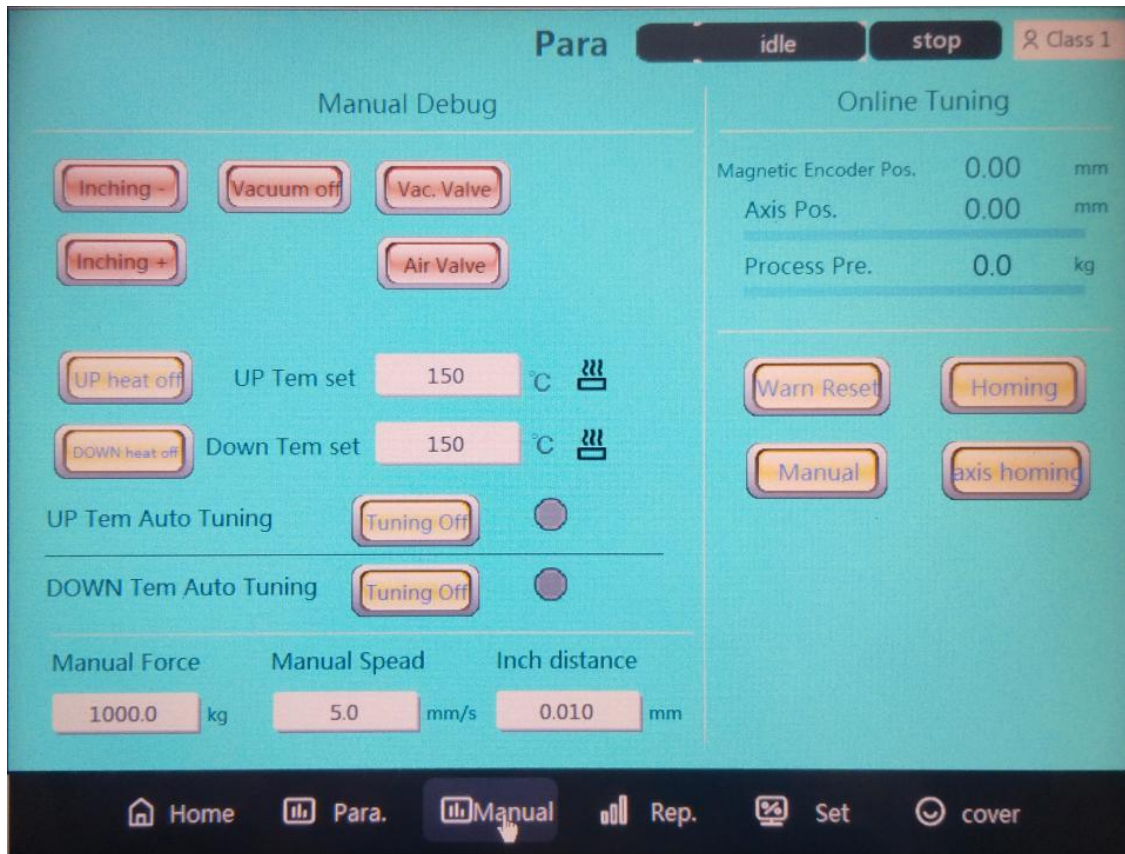
Each segment can be configured with upper die temperature, lower die temperature, heating time, pressure, hold time, and vacuum level.

Evacuate before pressing: You can choose to vacuum first, then press, or press first, then vacuum.

Recipe parameter settings: Create a new recipe file name in English or numbers, and save/read the current recipe



- Manual mode



Manual Adjustment

Press-up: Manually click to jog the Z-axis upward.

Press-down: Manually click to jog the Z-axis downward.

Set the force and speed for manual inching.

Manual output, manual speed, and inching distance.

Manually operate the vacuum pump, vacuum valve, and decompression valve solenoid valves to energize the vacuum pump.

Sealing position: Click to directly switch to the sealing position.

Fan switch: Manually turn the machine fan on and off.

Upper mold heating switch: Enables temperature alarm during press-fit.

Lower mold heating switch: Enables timed alarm if negative pressure is not reached during press-fit.

Upper mold temperature self-diagnosis: Enables upper mold temperature self-diagnosis (factory self-tuning).

Lower mold temperature self-diagnosis: Enables lower mold temperature self-diagnosis (factory self-tuning).

3 Reports

Page Description

The production report page is primarily used to view historical production data.



 Page Details

- Production Report

Time: Records the date and time of production.

Module: Records the number of products currently being produced.

Product Cycle: Records the time required to complete press-fitting of a product.

Target Pressure: Records the target pressure during press-fitting.

Actual Pressure: Records the actual pressure at the end of press-fitting.

End Position: Records the set end position for press-fitting.

Actual Position: Records the actual position of the press axis at the end of press-fitting.

Pressing Mode: Records the press-fitting mode ("Position Press" or "Pressure Press") during sure.

Export to USB: Exports recorded historical data to a USB flash drive.

Delete: Clears recorded historical data. Please operate with caution.

Page Introduction

I/O Input and Output Page

Check the I/O input and output table to determine the normal connection of the point

Input

☐ X00 Two-Hand Signal	☐ X17 Lower Temp Alarm	☐ X21	☐ X28
☐ X01 Two-Hand Signal	☐ X18 Lower Temp Alarm	☐ X22	☐ X29
☒ X02 E-Stop	☐ X09	☐ X16	☐ X23
☐ X03 Z Home	☐ X10 Safety Light Curtain	☐ X24	☐ X30
☐ X04	☐ X11 Left Safety Door	☐ X25	☐ X31
☐ X05	☐ X12 Low Vacuum	☐ X26	伺服报警信号: ☐ Y ☒ Z ☐ X ☐ A ☐ B ☐ C
☐ X06	☐ X13 High Vacuum	☐ X27	伺服Z信号: ☐ Y ☐ Z ☐ X ☐ A ☐ B ☐ C

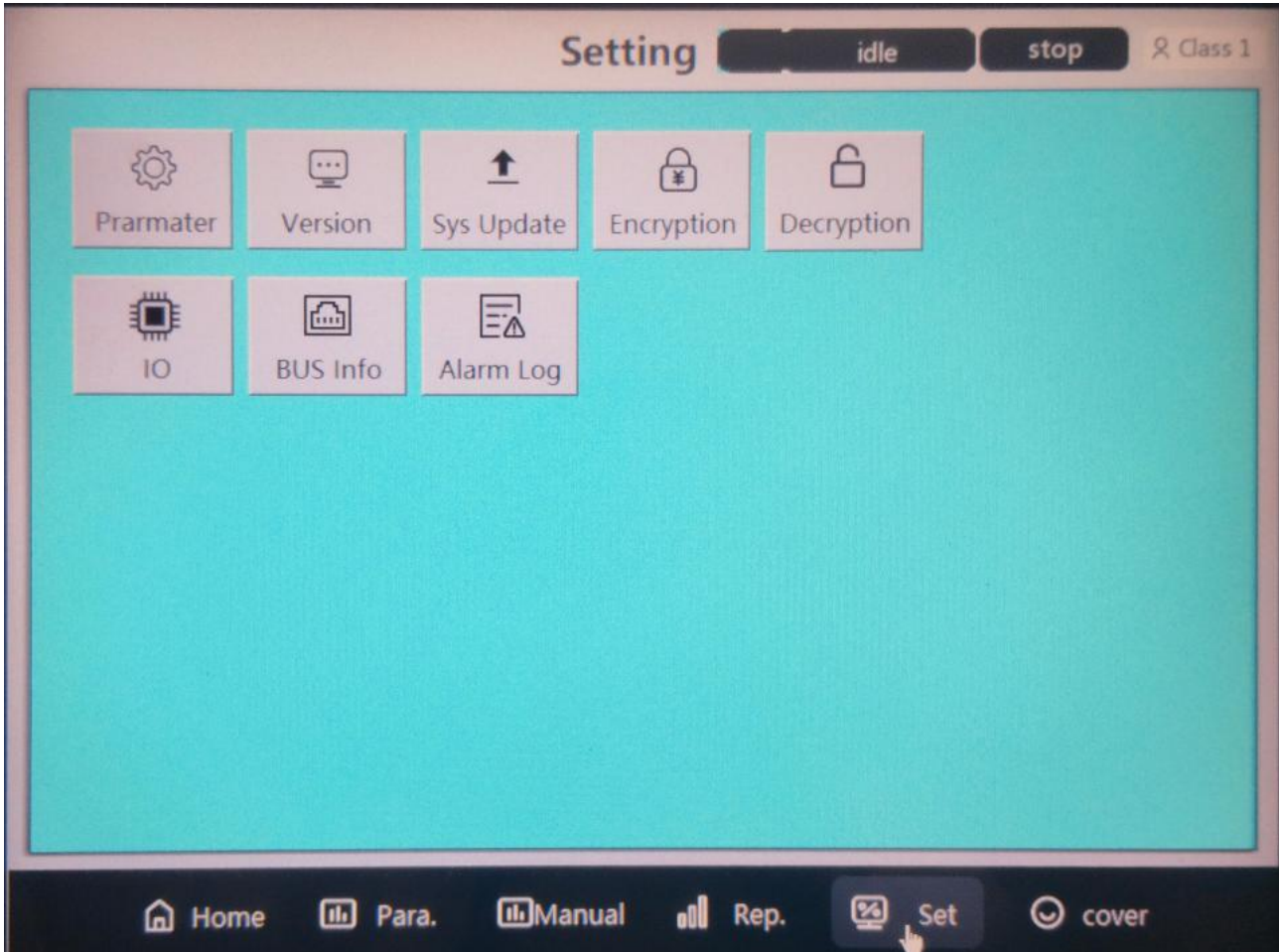
Output

☐ Y00 Start LED	☐ Y05 Light	☐ Y10	☐ Y15	Press OK
☐ Y01 Stop LED	☐ Y06	☐ Y11	☐ Y16	Press NG
☐ Y02 Alarm LED	☐ Y07	☐ Y12	☐ Y17	Press Complete
☐ Y03	☐ Y08	☐ Y13	☐ Y18	Homing Completed
☐ Y04	☐ Y09	☐ Y14	☐ Y19	

Device Page

Page Introduction

The device page is mainly used to manage the basic parameters of the device and view the status information of the device.



Page Details

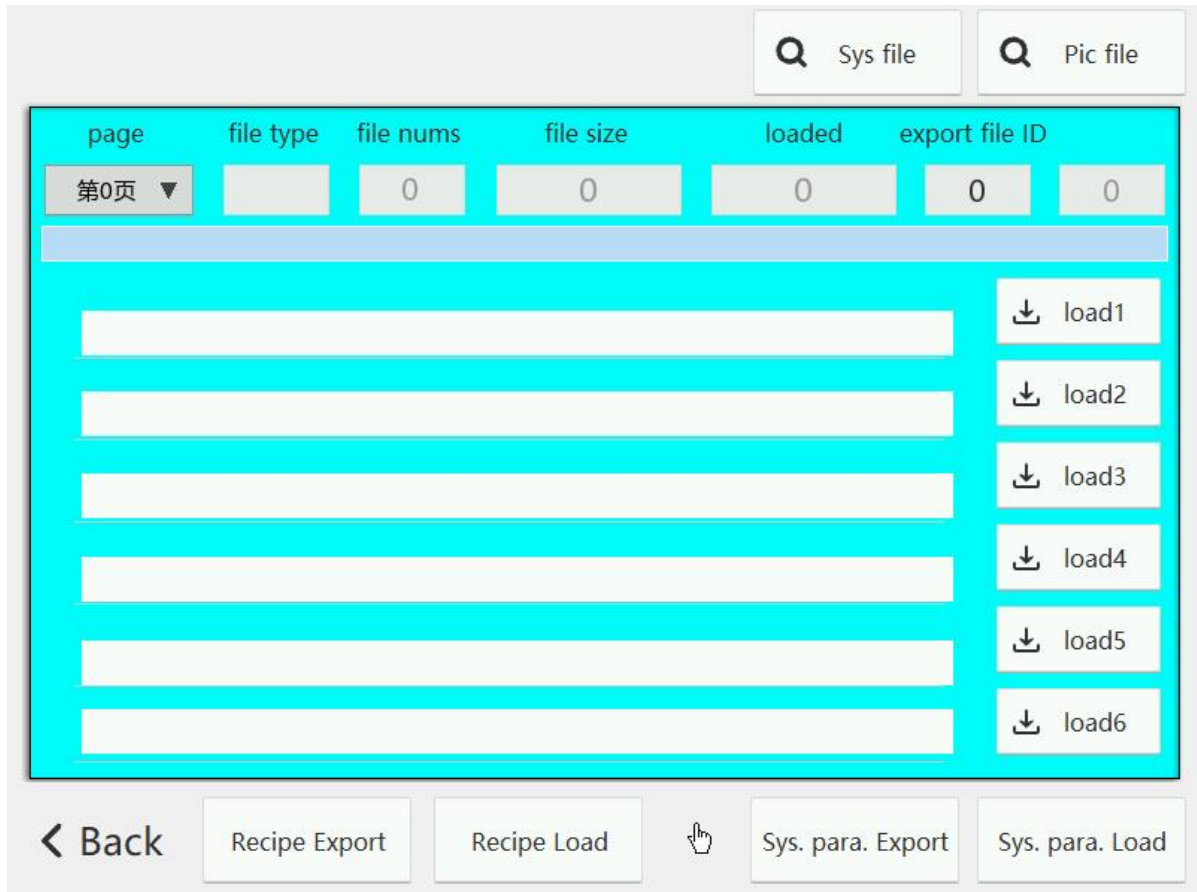
- System Parameters: Click this button to access the System Parameters page.
- Software Version: Click this button to access the Software Version Information page.
- System Upgrade: Click this button to access the System Files page, where you can update the software offline via a USB drive.
- Installment Encryption: Configure device installment information.
- Installment Interface: Click this button to access the Installment Decryption page.
- Input/Output: Click this button to access the I/O page, where you can view I/O status and point assignment details.
- Bus Information: Click this button to access the EtherCAT bus status information page.
- Alarm Log: Click this button to access the Historical Alarm Log page, where you can view historical alarm information. This is commonly used for troubleshooting.

4 System upgrade page

Page Description

How to access this page: Click the Device button -> System Upgrade.

The System Upgrade page is primarily for system maintenance personnel, after-sales service personnel, and software engineers to upgrade the system.



How to Upgrade

- Insert a USB drive into the monitor's USB port and click the button based on the file type you want to upgrade.
Search for graphics files (screen) and main system files (SMC host).
- Press the corresponding load button based on the name displayed on the left. A confirmation pop-up window will appear. Click OK to complete the upgrade.
- Remove the USB drive, power cycle, and complete the upgrade.

● Daily maintenance

- The vacuum pump oil needs to be changed regularly (3-6 months). First, drain the oil from the vacuum pump's outlet, then add specialized vacuum pump oil to the inlet. The oil gauge should not exceed three-quarters of the oil level.
- Grease the guide rails, optical axis, and bearings every 6 months (using high-temperature resistant grease).

- Regularly clean dust from the machine's structural components.

Specifications

No.	Item	Description	Remarks
1	Power Specifications	AC220V 50HZ	
2	Equipment Power	Approximately 3750W	
3	Heating Method	Constant temperature heating	Both upper and lower plates can be heated
4	Temperature Range	Room temperature -200° C (adjustable)	
5	Production Efficiency	Depending on the product	
6	Laminating Platform Dimensions	200MM*200MM	
8	Laminating Height (Stroke Height)	60mm	
9	Frame Height from Platform	90mm	
10	Theoretical Laminating Output	1000kg	
11	Pressing Mode	Pressure mode/position mode	
12	Laminating Process Control	Can be divided into 4 stages of process control	
13	Vacuum Mode	With vacuum press mode / without vacuum press mode	
14	Pressing Platen Down Speed (mm/s)	0.01-30(Configurable)	
15	Probing Speed (mm/s)	0.01-5	
16	Laminating Buffer Speed (mm/s)	0.01-5 (Configurable)	
17	Position Repeatability (mm)	±0.02mm	
18	Operation Method	Manual/Automatic Mode	
19	Dwell Time (s)	Hourly settings available	
20	Appearance Dimensions	48cm*45cm*108cm	
21	Net Weight	Approximately 150 kg	

Alarm Description

Note: After resolving an alarm, you must reset the alarm before continuing to boot.

Alarm	Alarm reason	Alarm handling
SRAM battery failure	The battery inside the system is abnormal	A. Power on for 10 minutes (to charge the battery), then power off and restart. B. Contact the supplier.
24V abnormality	The host input power supply is not between 21V and 26V	Check the input power supply and ensure that the input voltage is between 21V-26V. The standard voltage is 24V.
SRAM abnormality	System internal error	Contact Supplier
CPU Battery failure	System internal error	A. Power on for 10 minutes (battery charging), then power off and restart. B. Contact the supplier.
FPGA abnormality	System internal error	Contact Supplier
Emergency stop	The emergency stop signal persists	A. Check the external emergency stop button to make sure it is released. B. Check the IO page and check the emergency stop input signal. If a signal is present, verify that the signal is correct. If no signal is present, check the polarity of the emergency stop input signal. If it is set to normally closed, switch it to normally open.
Servo abnormality alarm	The system does not detect a signal from the servo drive	A. The servo cable is not connected to the drive: Reconnect the servo cable correctly or shut down the axis in the system to reset the alarm. B. The servo cable is correctly connected, but the drive is alarming: Clear the drive alarm (contact the supplier for assistance), then reset the alarm. C. Power cycle the machine.
XX axis Positive and negative limit	During linear axis motion, the corresponding limit input has a signal	A. Check whether the limit signal and external signal on page 11 are normal. B. Check whether the positive and negative limit switches on page 2 are configured correctly.
Count reached	The set output has been reached	Clear completion count and reset alarm
Zero return timeout	Zero return has not been completed for a long time.	Check the zero signal and whether there is air supply entering the machine
Negative pressure not reached	The negative pressure gauge has not reached the set value during startup.	A. Check the vacuum pump for any abnormalities (perform regular maintenance and replace the vacuum pump oil). B. Check the vacuum timer setting. C. Check the sealing of the sealing frame.
Platform ingress not reached	The platform has not reached the entry point during startup	A. Check the platform and cylinder sensor to see if they are illuminated. B. Check the platform detection timer setting.

Alarm	Alarm reason	Alarm handling
Platform egress not reached	When starting the operation, the platform does not arrive	A. Check the platform and see if the cylinder sensor is on. B. Check the platform detection timer setting.
Temperature abnormality alarm	When starting operation, the actual temperature deviates too much from the set temperature	Check whether the temperature sensing line is normal (the upper and lower plate heating is divided into six-way temperature control heating, with three temperature zones on the upper and lower sides)